



How Small is a Nanometer?

The tiny devices, called **transistors**, built onto **computer chips** can be as small as a few **nanometers**. But how small is a nanometer? Or a better question is, how big is a meter? You are probably about 1 meter tall. A nanometer is a *billion* times smaller than a meter, but that's hard to picture.

Let's start by imagining something just 1000 times smaller than a meter. That's what we did in the 'Draw a 1 meter Creature' activity, when we drew a 1 meter creature, and then drew a 1 **millimeter** creature next to it. That little 1 mm creature was 1000 times smaller, and even though it is pretty tiny like the size of an ant, we could still see it.

After that we *tried* to draw a 1 **micron** pencil dot, which would be 1000 times smaller than a millimeter. With a pencil, even if we try to sharpen it much as we can, we can't really draw something as small as 1 micron - in fact, we can't even see as small as 1 micron! The smallest thing you can see with your naked eye is about 40-50 microns, or about the width of a human hair.

So now, 1000 times smaller than *that* is nanometer. We can't see it with the human eye, unless we have a very powerful microscope.

Remember, a nanometer is a billion times smaller than a meter (you!). You can't see it, but that's how small the transistors are on a computer chip. We can pack millions, even billions of transistors onto a single chip. Now you know why your smartphone and all of the other devices you use everyday, can do so many things!

